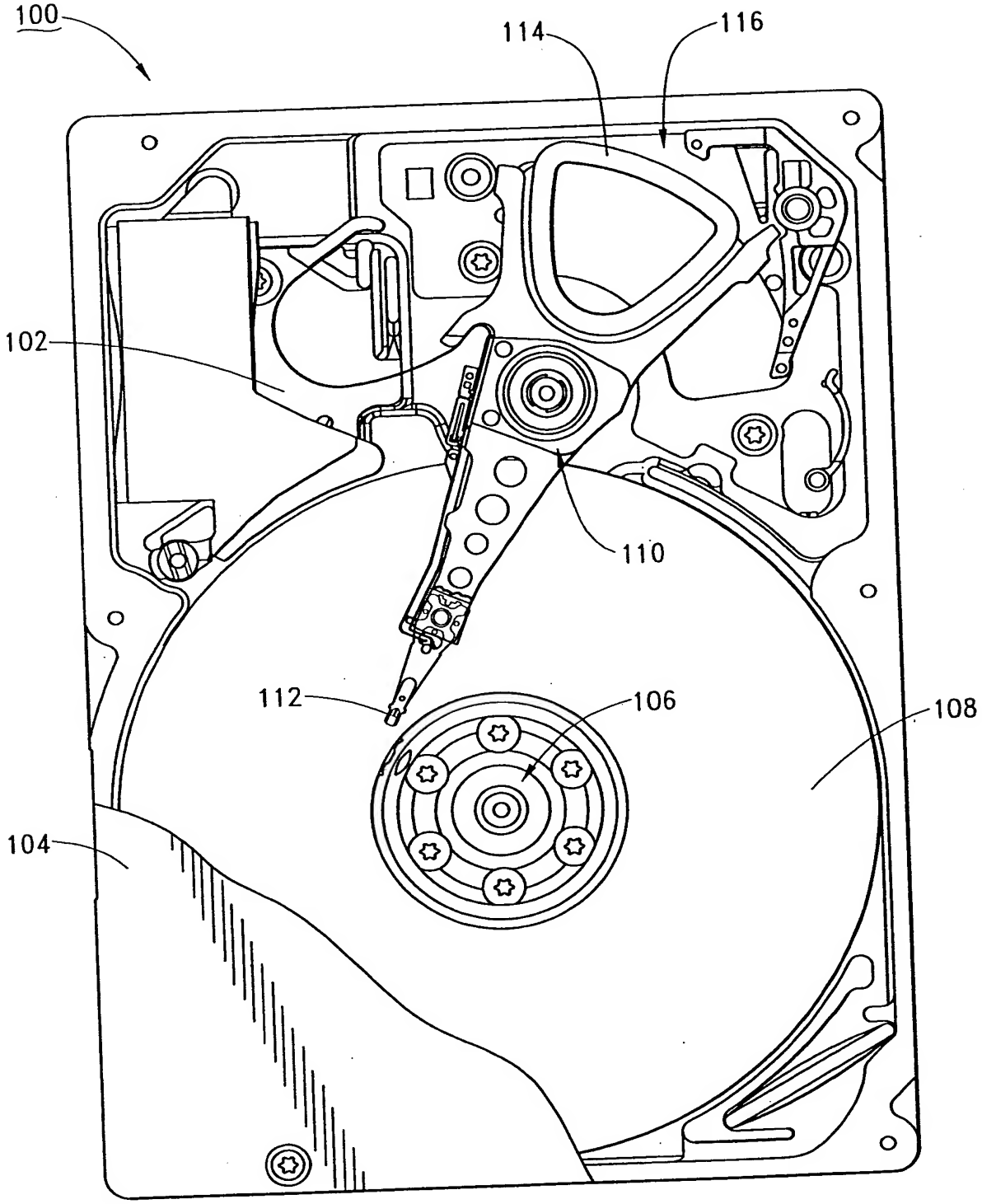
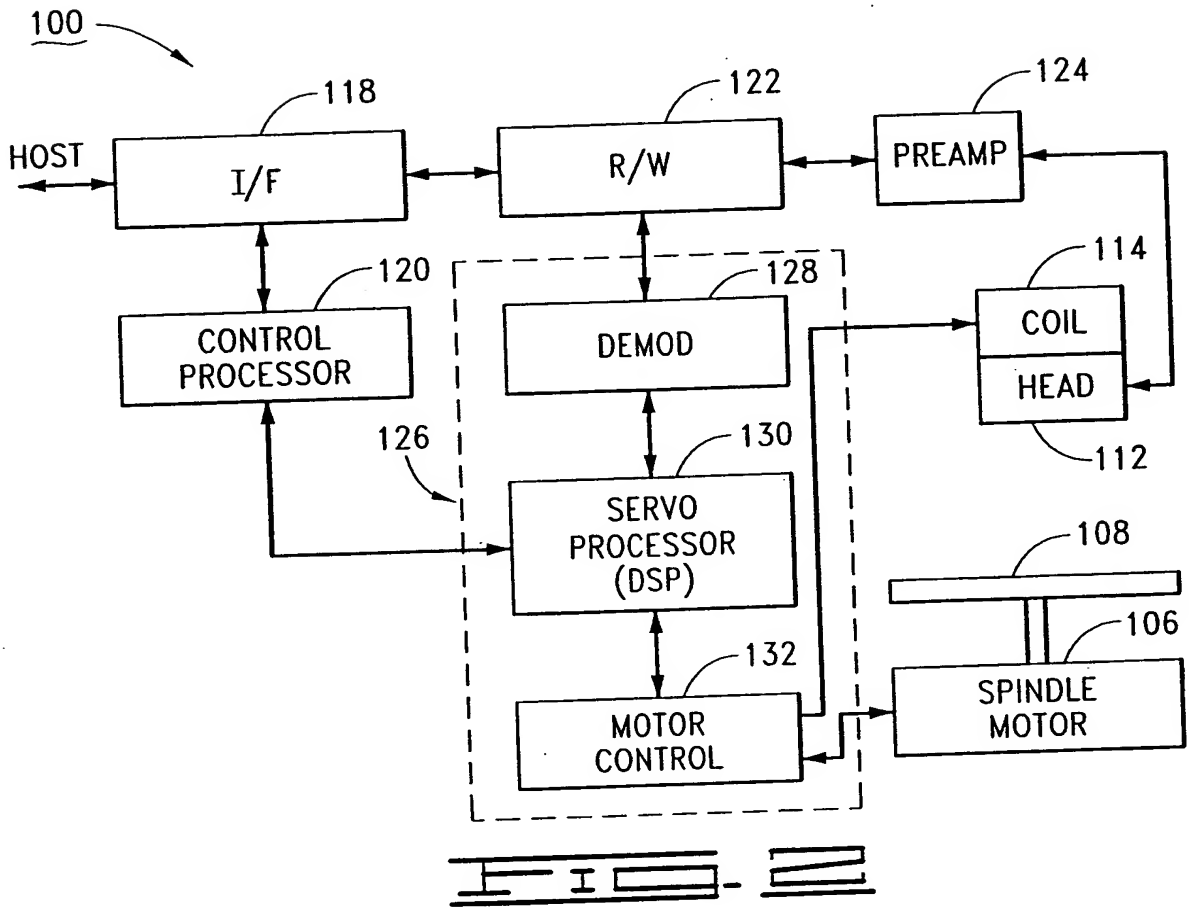
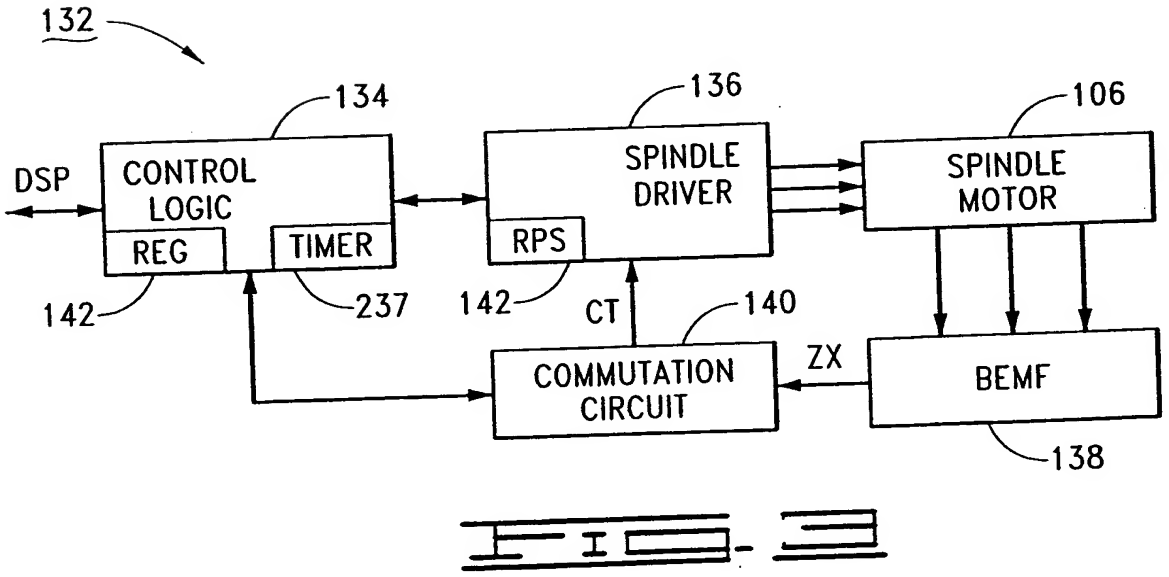


FIG. 1

10025941.122107


100
118
122
124
HOST
I/F
R/W
PREAMP
120
128
114
CONTROL PROCESSOR
DEMOD
COIL
HEAD
112
126
130
SERVO PROCESSOR (DSP)
108
106
132
SPINDLE MOTOR
MOTOR CONTROL


132
134
136
106
DSP
CONTROL LOGIC
REG
TIMER
SPINDLE DRIVER
RPS
SPINDLE MOTOR
142
237
142
CT
140
ZX
COMMUTATION CIRCUIT
BEMF
138

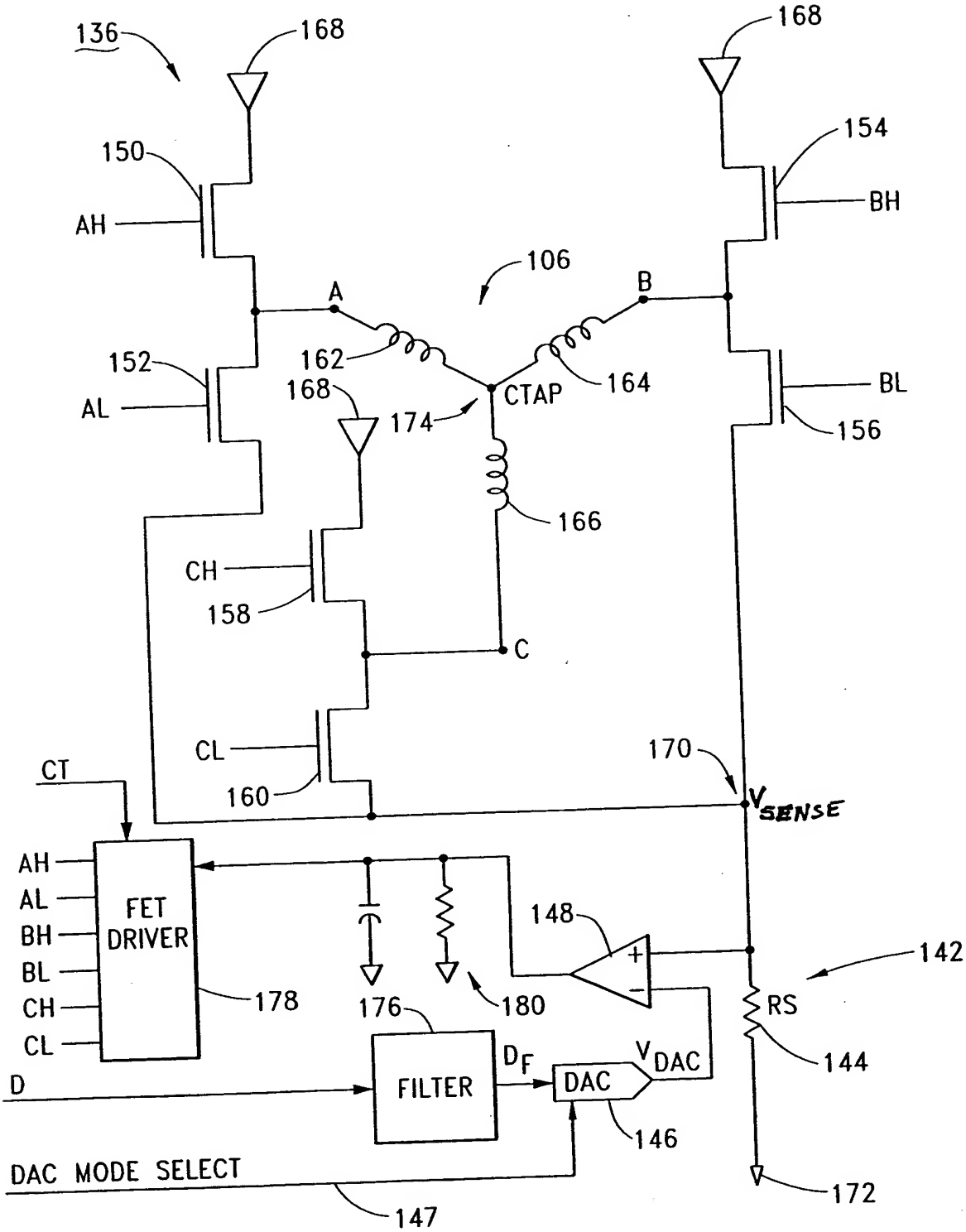

136
168
168
150
154
AH
BH
106
A
B
152
162
164
AL
168
CTAP
BL
174
156
166
CH
158
C
CL
160
170
CT
V_{SENSE}
AH
AL
BH
BL
CH
CL
FET DRIVER
178
148
142
176
180
RS
144
FILTER
D_F
V_{DAC}
D
DAC
146
DAC MODE SELECT
147
172

FIG. 4

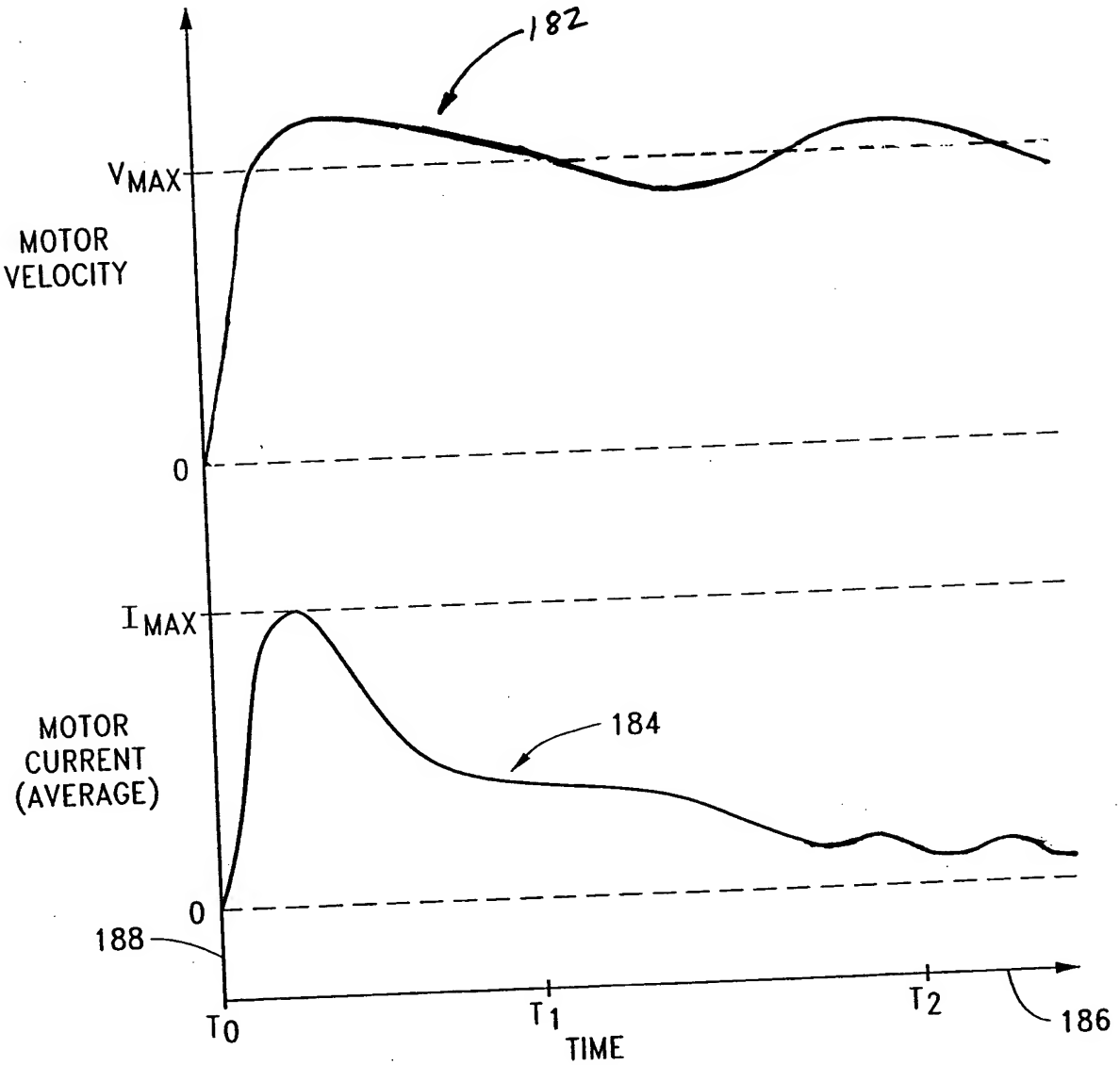

182
VMAX
MOTOR VELOCITY
0
IMAX
MOTOR CURRENT (AVERAGE)
184
0
188
T0
T1
T2
TIME
186

FIG. 5

Docket #P1574US01

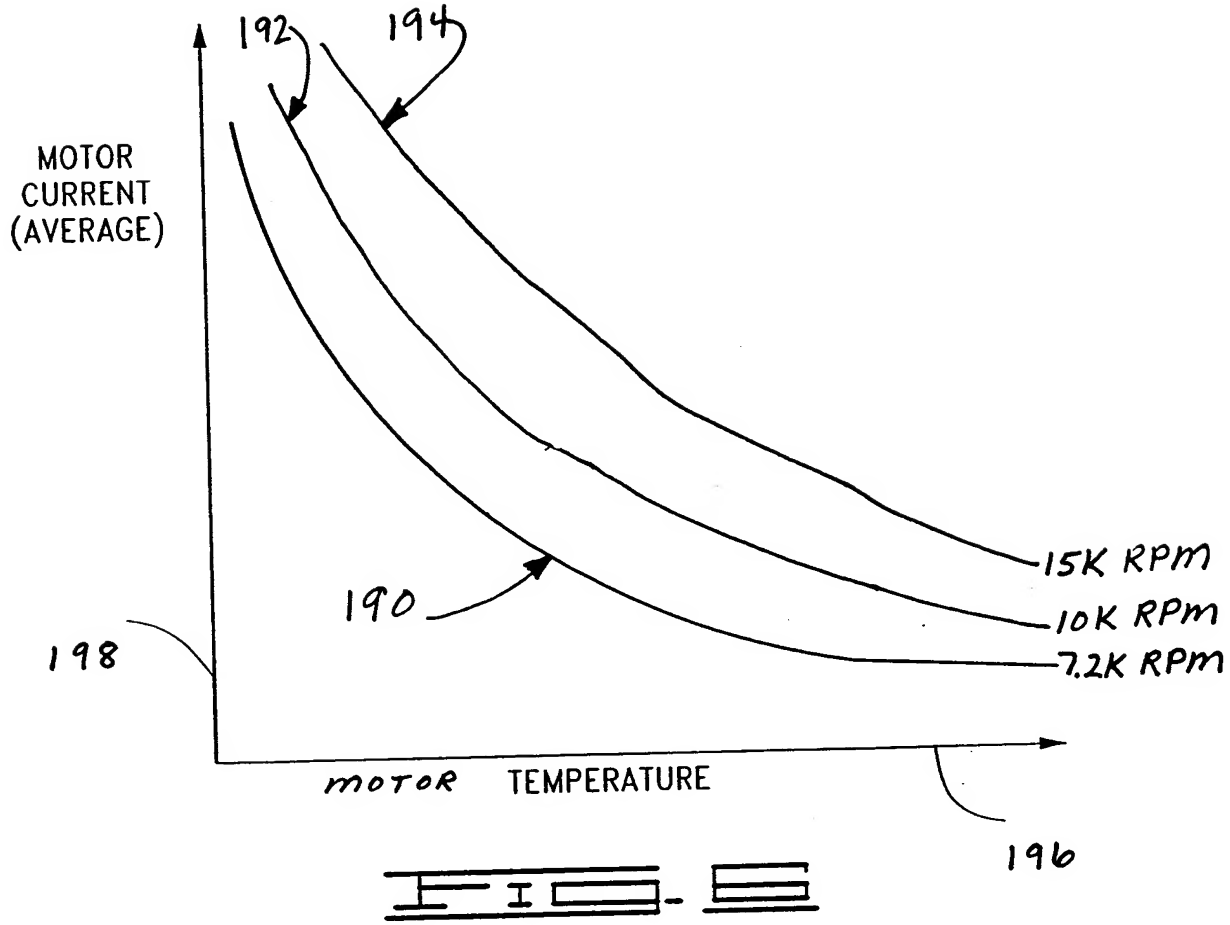


FIG. 5

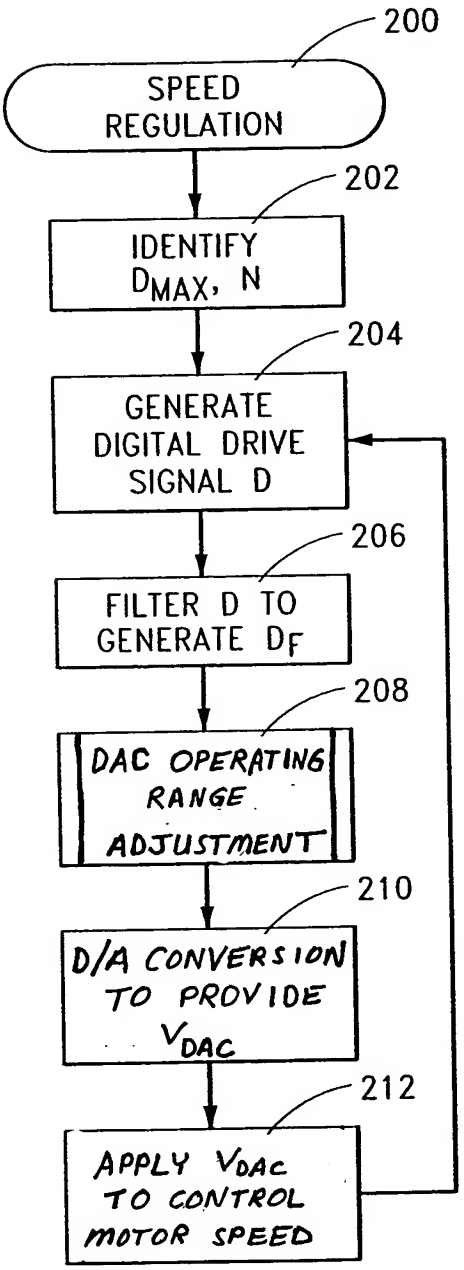

200
SPEED REGULATION
202
IDENTIFY D_{MAX}, N
204
GENERATE DIGITAL DRIVE SIGNAL D
206
FILTER D TO GENERATE D_F
208
DAC OPERATING RANGE ADJUSTMENT
210
D/A CONVERSION TO PROVIDE V_{DAC}
212
APPLY V_{DAC} TO CONTROL MOTOR SPEED

FIG. 7

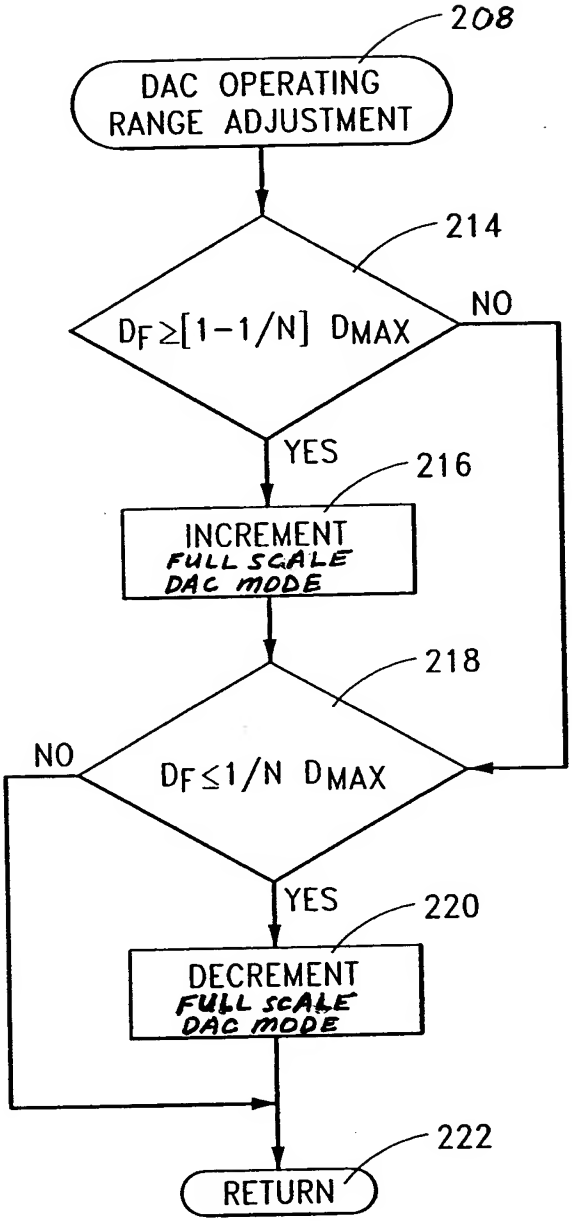

208
DAC OPERATING RANGE ADJUSTMENT
214
$D_F \geq [1-1/N]\ D_{MAX}$
NO
YES
216
INCREMENT FULL SCALE DAC MODE
218
$D_F \leq 1/N\ D_{MAX}$
NO
YES
220
DECREMENT FULL SCALE DAC MODE
222
RETURN

FIG. 8